

ON SOME SOUTH AFRICAN FLEAS.

By DR. KARL JORDAN.

(With 7 text-figures.)

1. *Dinopsyllus ellobius abaris* subsp. nov. (text-fig. 1).

♂♀. Similar to small specimens of *D. e. ellobius* Roths. 1905 from Zululand, but the apical margin of VIII. st. of ♂ truncate-emarginate subventrally instead of being strongly rounded.

Tubercle of frons central or slightly below centre. Pronotal comb with 26 to 30 spines, these about two-thirds the length of the pronotum; two rows of bristles: 14 to 18, 13 or 14 (more rarely 12). On mesopleura from 16 to 30 bristles, on metepimerum from 13 to 20. Number of spines on abdominal tergites II to VI in the extreme specimens:

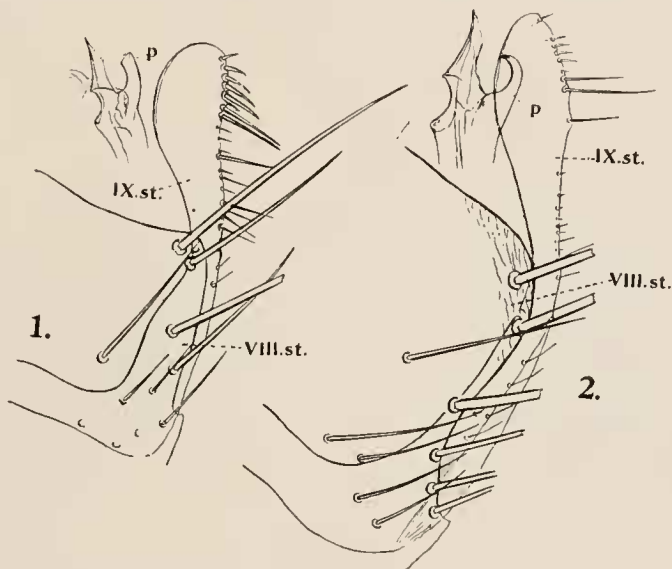
♂ $\frac{5}{6}, \frac{5}{5}, \frac{5}{7}, \frac{4}{7}, \frac{0}{0}$ and $\frac{4}{3}, \frac{4}{4}, \frac{1}{1}, \frac{0}{0}, \frac{0}{6}$; in ♀ $\frac{6}{5}, \frac{6}{7}, \frac{7}{7}, \frac{6}{2}, \frac{0}{6}$ and $\frac{3}{3}, \frac{2}{2}, \frac{2}{2}, \frac{0}{0}, \frac{0}{0}$;

average on the two sides together in ♂ 4.50, 4.17, 4.67, 2.67, 0.00, in ♀ 4.00, 3.88, 4.88, 1.00, 0.00. Bristles on tergites III, IV and VII (on the two sides together)

in ♂ III 38 to 48, 18, IV 36 to 48, 18 or 19, VII 18 to 31, 17 or 18; in ♀ III 49 to 78, 18 to 22, IV 50 to 76, 18 to 22, VII 18 to 39, 10 to 13.

♂. On abdominal sternite VII (the two sides together) from 27 to 35 bristles, on VIII. st. (one side) from 35 to 44. Apex of IX. st. (text-fig. 1) broad, strongly rounded dorsally, the ventral bristles placed at and below apex rather strongly spiniform; pseudojoint halfway between frontal side of elbow and apex. Ratio between basal portion of exopodite (measured from dorsal angle between clasper and exopodite to extreme proximal end of exopodite) and free projecting portion 3:8 (15:40 or 16:42). Ventral apical process (p) of armature of penis truncate. At ventral apical angle of VIII. st. two bristles close together, often the next bristle placed close to the pair (text-fig. 1).

♀. Apical margin of VII. st. as in *D. e. ellobius* more deeply incurved than in *D. lypsus* J. & R. 1913. Bristles on VI. st. 24 to 34 and on VII. st. 55 to 69



(the two sides together), on outer side of VIII. t. from below stigma 25 to 39 (one side).

Length of hindfemur : ♂ 0.38–0.45 mm. ; ♀ 0.44–0.52 mm.

Hab. Cape Province : Klaver, Doorn R., from *Arvicanthis*, May 1928 (C. V. Muller), and Breede R., August 1928, off *Arvicanthis* (C. V. Muller) ; 3 ♂♂, 7 ♀♀.

2. *Dinopsyllus tenax* sp. nov. (text-fig. 2).

♂♀. A large species, nearest to *D. longifrons* J. & R. 1913, but the frons as short as in *D. ellobius* Roths. 1905. On pronotum 3 rows of bristles, the anterior two rows (first usually incomplete) containing together 20 to 27 bristles, rarely 19. Apical spines of abdomen twice as numerous as in *D. ellobius*. Surface structure of setiferous areas of abdominal sternites not distinctly reticuliform. Tubercle of frons central or a little below centre. Pronotal comb with 31 or 32 spines in ♂, 33 in ♀, the spines shorter than in *D. ellobius* and *D. lypusus* J. & R. 1913, agreeing with those of *D. longifrons*. On mesopleura in ♂ from 24 to 27 bristles, in ♀ from 32 to 38, on metepimerum in ♀ from 17 to 26, in ♀ from 23 to 35. Number of spines on abdominal tergites II to VI in the extreme specimens : ♂ $\frac{11}{11}$, $\frac{10}{11}$, $\frac{12}{13}$, $\frac{11}{10}$, $\frac{1}{1}$ and $\frac{9}{7}$, $\frac{9}{8}$, $\frac{11}{11}$, $\frac{8}{9}$, $\frac{9}{9}$; average on the two sides together, in ♂ 9.50, 10.13, 11.63, 10.25, 0.38, in ♀ 8.88, 9.25, 11.00, 6.50, 0.00. Bristles on tergites III, IV and VII (on the two sides together) in ♂ III 43 to 50, 20 to 23, IV 38 to 45, 19 or 20, VII 20 to 24, 18 to 21 ; in ♀ III 71 to 92, 21 to 26, IV 62 to 98, 22 to 26, VII 21 to 38, 11 to 14.

♂. On abdominal sternite VII (the two sides together) 25 to 31 bristles, on VIII. st. (one side) from 36 to 44. Ventral apical angle of VIII. st. broadly rounded, the two distal ventral bristles of a row of 7 or 8 large ones rather close together, separated by a wider interspace from the next ventral bristle. Pseudo-joint of IX. st. close to middle (text-fig. 2), apex of IX. st. dorsally not much more strongly convex than ventrally ; the ventral bristles below apex weak. Ratio between basal portion of exopodite and free projecting portion 3 : 10. Ventral apical process (p) of penis-armature acuminate, strongly curved.

♀. Apical margin of VII. st. as in *D. longifrons* less deeply incurved than in *D. ellobius*. Bristles (the two sides together) on VI. st. from 35 to 44, on VII. st. from 63 to 80, on outer surface of VIII. t. from below stigma 35 to 46 (one side).

Length of hindfemur : ♂ 0.60–0.62 mm. ; ♀ 0.67–0.78 mm.

Hab. Cape Province : Klaver, Doorn R., from nest of *Myodomys broomi* and *Parotomys luteolus*, May 1928 (C. V. Muller), and Breede R., August 1928, off Karroo rats (C. V. Muller) ; a series.

Listropsylla Roths. 1907, genotype : *L. agrippinae*.

Head short, evenly and not strongly rounded from oral corner to hind-margin. Above middle of frons a groove with a large leaf-like tubercle. Eye present ; behind it at margin of antennal groove a long bristle. Antennal groove open, not extending to vertex. Labial palpus with 4 segments, reaching to trochanter or nearly, end-segment pointed.

Pronotum with a comb of more than 24 spines and 2 or 3 rows of bristles (in exceptional specimens 1 row). Metanotum without apical comb.

Abdominal tergites I to IV, or I to VI, with apical spines, which are most numerous on tergite I (at least 20). 3 strong antepygidial bristles, sometimes 4. Pygidium large, not humped, subtriangular in side-view, with the apex of the triangle directed laterad; on each side 16 (rarely 14) or more grooves.

In most dorsal notches of tibiae 3 heavy bristles. Tarsal segment V with a pair of ventral bristles in between second pair.

♂. VIII. st. large, with 8 or more bristles. Manubrium of clasper very broad at base; clasper dorsally with large bristle near base, beyond bristle a bay, flanked distally by a dorsal apical projection. Exopodite long, with the apex curved down, at ventral margin a long bristle near base or beyond middle, dorsal margin somewhat elbowed and here studded with small hairs. Ventral arm of IX. st. long and narrow, with a lateral subdorsal pair of rather heavy bristles well beyond middle, and subapical ventral bristles.

♀. Between the two sets of antepygidial bristles a long projection. Apical margin of VII. st. simple, at the most slightly incurved. Stylet subcylindrical, at least four times as long as basally broad. Orifice of spermatheca ventral, with a collar.

A purely African genus; not yet known from West Africa (Senegal to Angola).—7 species.

1. *Listropsylla agrippinae* Roths. 1904.

♂♀. *Ceratophyllus agrippinae* Rothschild, *Nov. Zool.* xi, p. 634, no. 25, tab. 12, figs. 56, 57; tab. 13, figs. 62, 64 (1904) (Deelfontein).

♂♀. The smallest known species. In both sexes, but more pronouncedly in ♀ than in ♂, the second segment of antenna apically so widened-rounded distad that the basal portion of the club is covered; the bristles of this segment reach to or beyond apex of club. End-segment of proboscis at most one-half longer than penultimate one. On abdominal tergite I from 20 to 30-odd apical spines. First midtarsal segment at most 0.16 mm. long; in hindtarsus segment V more than one-third the length of I. Stigma cavity of tergite VIII more or less far continued upward along margin of segment. On forecoxa 100 or more bristles (sometimes over 140).

Hindfemur with 2 (very rarely 3) ventral subapical bristles on outside.

Hindtibia with 7 dorsal notches (inclusive of apical one).

♂. Body of elasper little longer than broad, the dorsal bay quite small, lower apical process short, with two bristles, of which the upper one is somewhat the smaller. Manubrium at least as long as exopodite; the latter about three times as long as broad; its long ventral bristle placed near base, smaller than the largest ventral bristles of segment VIII. Ventral arm of IX. st. almost straight and of nearly even width, at apex ventrally rounded and slightly dilated, and gradually narrowed to a point at the end of the dorsal margin, which remains straight; on each side below apex 3 or more bristles directed distad and thinner than the pair of dorso-lateral bristles.

♀. Margin of VII. st. distinctly incurved subventrally. 4 antepygidial bristles (38 specimens), very rarely three on one side (one specimen) or on both sides (one specimen). Pygidium with 30 or more grooves each side. In front of stylet below and behind pygidium about 9 bristles. Stylet longer than midtarsal segment V. On basal area of VIII. st. no bristles between trachea and ventral

setiferous area. Rod-like sclerification behind orifice of bursa eapulatrix slightly arched, as long as hindtarsal segment IV or even longer. Tail of spermatheca longer than in any of the other species, longer than the head, which is flattened above.

Length of hindfemur: ♂ 0.45 to 0.59 mm.; ♀ 0.51 to 0.61 mm.

Hab. Cape Province: Deelfontein, off *Otomys brantsi* and *O. unisulcatus*, March 1902 (C. H. B. Grant); Breede R.; Calvinia, from nest of *Parotomys broomi*, August 1926 (T. Muller). Klaver, Doorn R., off *Arvicanthis* and from nests of *Mystomys broomi* and *Parotomys luteolus*, May 1928 (C. V. Muller); Steynsburg, from nests of *Parotomys luteolus*, October 1925; Cape Flats, off *Rhabdomys pumilio* and *Otomys irroratus*, February 1926 (T. Muller); Bellville, from nests of *Arvicanthis*, March 1926 (T. Muller)

The bristles vary considerably in number, for instance on VII. st. (two sides together) I have counted from 22 to 38.

2. *Listropsylla vicinus* Roths. 1905.

Ceratophyllus vicinus Rothschild, *Nor. Zool.* xii, p. 484, no. 5, tab. 13, fig. 7 (1905) (Wakkerstroom, "Namaqualand" laps. cal.).

♂♀. Very close to *L. agrippinae*, somewhat larger; only the original pair known to me. On tergites VI and VII in ♂ no bristles below stigma, in ♀ one on V, one on VI on left side, none on right, on VII none on both sides. Three antepygial bristles in both sexes. Exopodite of ♂ one-third broader than in *L. agrippinae*; lower apical angle of elasper not produced distad. The other distinctions mentioned in the original description are not reliable in face of the great individual variability of *L. agrippinae* as revealed by the series of specimens of *L. agrippinae* now available. The end-segment of the proboscis was stated to be double the length of the penultimate one; on re-measuring we find it to be less than twice the length. In *L. agrippinae* the proportional lengths of the segments as well as the total length of the proboscis are variable to a very marked extent, the ratio between segments III and IV being sometimes 15:20, sometimes 9:21, with intergradations.

Length of hindfemur: ♂ 0.60 mm.; ♀ 0.69 mm.

Hab. South Transvaal: Wakkerstroom, off *Herpestes badius*, March 1904 (C. H. B. Grant), one pair.

3. *Listropsylla dorippae* Roths. 1904.

♀. *Ceratophyllus dorippae* Rothschild, *Nor. Zool.* xi, p. 636, no. 26 (1904) (Deelfontein).

♂♀. Antennal segment II not dilated distad; its bristles reaching about to middle of club. Spines of pronotal comb longer than half the pronotum. Mesopleura with 7 to 11 bristles, usually 7 to 9; metepimerum with 15 to 21, usually fewer than 20. On abdominal tergite I 13 to 20 apical spines, usually fewer than 20, on II 2 to 7, usually 7, on IV 0 to 4, mostly 1 or 2, on V 0. Pygidium with 18 to 21 grooves on each side. In midtarsus segment I twice the length of V, in hindtarsus I not quite thrice as long as V. Three antepygial bristles (in one of the ♀♀ 4 on one side). No bristle of anterior row of abdominal tergites below stigma. Stigma-cavity of VIII. t. shortly continued upwards.

♂. On each side of VIII. st. 20 to 25 bristles, of which 4 to 6 along ventro-apical margin are long and strong. Dorsal bay of elasper, between large dorsal

basal bristle and dorsal apical projection, at most one-fourth broader than the elasper is wide at bottom of bay; ventral angle produced into a cylindrical process which is from two to three times as long as broad and bears two apical bristles, the upper being the longer and stronger one. Exopodite similar to that of *L. dolosus*, its apex somewhat more strongly curved downwards.

♀. Head of spermatheca irregularly elliptical, longer than in any other known species. Sclerite behind ring of bursa copulatrix long, nearly as long as midtarsal segment III. Stylet as long (or very nearly) as midtarsal segment V. On widened area of VIII. t. from 25 to 30 odd bristles on outer surface, on inside 5 to 7 marginal ones, of which 1 or 2 are ventral.

Length of hindfemur: ♂ 0.67–0.80 mm.; 0.74–0.86 mm.

Hab. Cape Province: Deelfontein, off *Otomys brantsi*, April 1902 (C. H. B. Grant); Bothaville, off *Tateralobengulae*, August 1920.—Transvaal: Randfontein, from nest of *Tatera lobengulae*, August 1925; and Pyramid, from same host, June 1926 (Dr. A. Ingram).

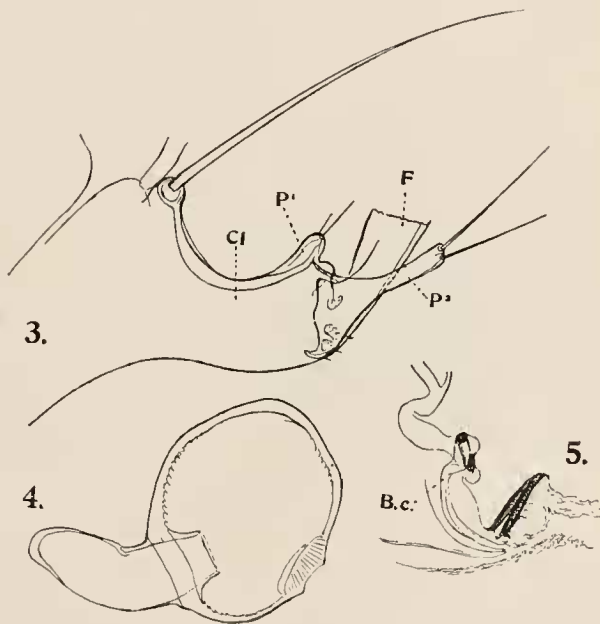
4. *Listropsylla prominens*
spec. nov. (text-figs.
3 4, 5).

Similar to *L. dorippae* Roths. 1904. Abdominal tergite I in ♂ with more than 23 to 25 spines, in ♀ with 20 to 24; midtarsal segment I less than twice the length of V; lower apical process of ♂-clasper long and narrow; head of spermatheca nearly globular.

♂♀. Antennal segment II not dilated distad, its bristles not or barely reaching middle of club. Dorsal spines of pronotal comb a little longer than half the pronotum. Mesopleura in ♂ with 8 to 11, in ♀ with 10 to 15 (usually 10) bristles. On metepimerum in ♂ 14 to 19, in ♀ 16 to 22 bristles. Spines at apices of abdominal tergites in ♂ I 23 to 25, II 13 to 19, III 9 to 17, IV 1 to 12, V 0 to 8, VI 0 to 3, in ♀ I 20 to 24, II 6 to 14, III 2 to 12, IV 0 to 7, V 0, VI 0. Pygidium with 16 or 17 grooves on each side. Stigma-cavity of VIII. t. in ♂ slightly continued upwards at margin, in ♀ practically symmetrical. Proportional lengths of mid- and hindtarsal segments in largest and smallest specimens:

♂ midtarsus 35, 21, 12, 8, 20, and 28, 19, 11, 7, 18; hindtarsus 62, 45, 21, 13, 22, and 47, 34, 18, 11, 19.

♀ midtarsus 36, 21, 11, 8, 20, and 32, 21, 11, 8, 19; hindtarsus 63, 45, 20, 12, 22, and 56, 40, 20, 12, 21.



Last bristle of posterior row of abdominal tergites II to VII more ventral than stigmata, often placed vertically below stigma.

♂. On VIII. st. from 8 to 13 bristles of which three near ventro-apical margin long, between the two long distal ones a wide interspace. Body of clasper (text-fig. 3) narrower and somewhat longer than in *L. dorippae*, its width at bottom of bay one-third less than that of exopodite at long bristle; lower apical process (P^2) of clasper at least four times as long as broad, being a very little longer than hindtarsal segment IV; the two bristles at apex of this process thinner than in *L. dorippae*, being thinner at base than the subapical spiniform bristles of IX. st. Upper apical projection of clasper slightly narrower than in *L. dorippae*, below it, on distal side, usually a very distinct notch. Apex of exopodite less curved than in *L. dorippae*, large bristle longer and more strongly eurved. Apex of IX. st. less rounded, being dorsally more produced than ventrally.

♀. Spermatheca conspicuously different, its head being nearly globular (R.s., text-fig. 4). Double sclerite (text-fig. 5) behind bursa copulatrix (B.c.) much shorter and straighter than in *L. dorippae*, being less than twice the length of the diameter of the ring of the bursa. Stylet not quite half the length of midtarsal segment I. On VII. st. 33 to 39 bristles on the two sides together. On widened portion of VIII. t. 19 to 23 bristles on outer surface, and on inside 5 to 7 marginal ones, of which 1 or 2 are ventral.

Length of hindfemur: ♂ 0.66–0.78 mm.; ♀ 0.78–0.82 mm.

Hab. Zululand: Mfongozi, from *Rattus coucha*, *Rattus chrysophilus*, *Leggadia minutoides* (W. E. Jones), 5 ♂♂, 4 ♀♀.

L. dolosus, *L. prominens* and *L. dorippae* give one the impression of being geographical modifications of one species. But as we know as yet very little about the distribution of these fleas, it is advisable to treat them as distinct species.

5. *Listropsylla dolosus* Roths. 1907.

♀. *Ceratophyllus dolosus* Rothschild, *Ent. Mo. Mag.* (2), xviii, p. 175, no. 2 (1907) (Kikuyu Escarpment).

♂♀. Segment II of antenna not enlarged apicad, its bristles reaching at most to middle of club. End-segment of proboscis from one-fifth to one-half longer than penultimate segment. On abdominal tergite I from 20 to 26 spines, V at most with one spine. First midtarsal segment at least 0.27 mm. long; V a little less than one-half of I; in hindtarsus V less than one-third of I. Pygidium with 16 grooves each side (rarely 14). Orifice of stigma cavity of tergite VIII continued upwards. 3 antepygidial bristles.

♂. Dorsal margin of manubrium of clasper not much longer than one-half the exopodite; body of clasper much longer than broad, the bay between the dorsal basal bristle and the apical angle broad and shallow; ventral apical angle not, or very little, more produced than upper angle and bearing one bristle, which is long. Exopodite long, widest about middle, with the apex pointed and curved down; long ventral bristle approximately at three-fifths, smaller than the lower antepygidial bristle. Apex of IX. st. rounded.

♀. Head of spermatheca somewhat longer than tail; sclerite behind orifice of bursa copulatrix short, about equalling in length the diameter of the ring of the bursa. Stylet as long as, or a little shorter than, segment V of midtarsus.

Length of hindfemur ; ♂ 0.70–0.85 mm. ; ♀ 0.78–0.88 mm.

Two subspecies :

a. *L. dolosus stygius* Roths. 1908.

♂. *Ceratophyllus stygius* Rothschild, *Ent. Mo. Mag.* (2). xix. p. 77, no. 3. tab. 1. fig. 3 (1908) (Ruwenzori).

Only one ♂ known. The difference from the ♂♂ of *L. d. dolosus* is very slight and may turn out to be individual. Apical portion of exopodite measured from middle of groove of long ventral bristle somewhat shorter than the distance of tip of dorsal apical projection of clasper to middle of groove of dorsal basal long bristle ; in ♂ of *L. d. dolosus* the distances equal, or the apical portion of exopodite a little longer than width of bay. Two of the bristles of VIII. st. long (not one as stated in the original description, one of the two being broken away on the side figured, l.c.).

Length of hindfemur : ♂ 0.85 mm.

Hab. Ruwenzori, 13,000 ft., 1905, on *Rattus denniae* (A. F. R. Wollaston), 1 ♂.

b. *L. dolosus dolosus* Roths. 1907.

Cf. above.

Slightly smaller than *L. d. stygius*, the length of the hindfemur varying in ♂ from 0.70 to 0.78 mm., in ♀ from 0.77 to 0.84 mm.

Hab. Uganda : Bulage and Sipi, North Bugisbu, from *Rattus multimammata* and *Arvicanthus* spec., February 1922 (W. N. van Someren).—Kenya Colony : Mutarogwa, Aberdare Mts., from *Dendromys nigifrons* and *Graphiurus microtis saturatus*, March 1910 (R. Kemp) ; Nakura, from *Rattus rattus* († H. E. Hopkins).—Tanganyika Territory : Kilimandjaro, May 1910 (R. Kemp).—Nyasaland : Mlanje Plateau, from *Arvicanthus* spec., November 1913 (Dr. S. A. Neave).

6. *Listropsylla chelura* Roths. 1913.

♂♀. *Listropsylla chelura* Rothschild, *Ent. Mo. Mag.* (2). xxiv. p. 207. tab. 5. figs. 1, 2 (1913) (Pirie Mt., King Williams Town).

♂♀. Comb of abdominal tergite I with more than 40 spines. Dorsal spines of pronotal comb at the most half as long as pronotum. Pygidium with 19 to 24 grooves each side.

♂. Body of clasper strongly and densely striated transversely on underside ; dorsal apical process of clasper triangular, much longer than the lower, with a row of bristles at posterior margin, which is slightly rounded. Exopodite ventrally with a very long and strong curved bristle proximally of middle. Apex of IX. st. rounded. VIII. st. on each side with 22 to 25 bristles, of which 6 or 7 are long and strong. Anal sternite with 3 or 4 strong bristles each side.

♀. At orifice of bursa copulatrix a sclerified ring, behind which there is no pair of longitudinal, rod-like, sclerites. On VIII. t. between the proximal bristles of the setiferous widened area and the stigma 3 to 6 strong bristles. Proximally of stylet on lateral sclerite below pygidium from 13 to 16 bristles. Stylet almost exactly as long as hindtarsal segment III.

Length of hindfemur : ♂ 0.66 to 0.80 mm. ; ♀ 0.77 to 0.80 mm.

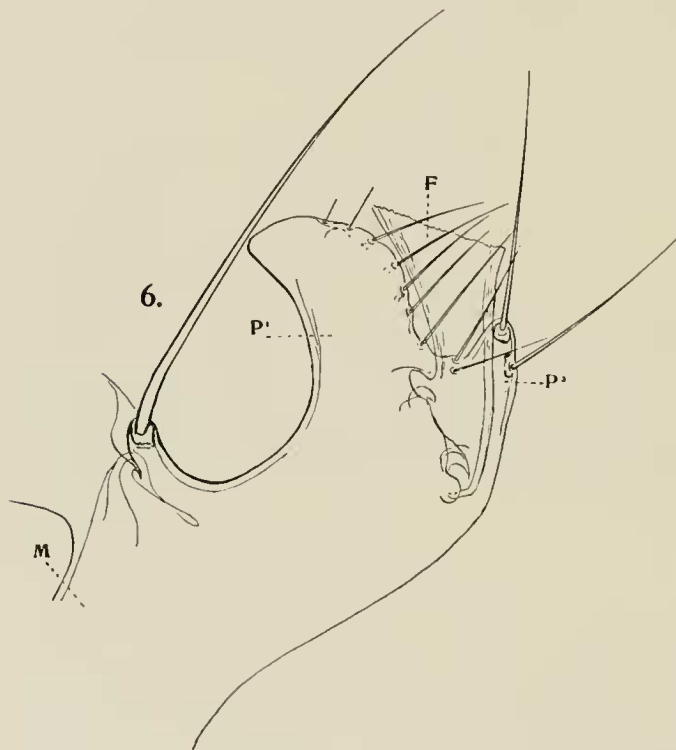
Hab. Cape Province : Kingwilliamstown, off *Arvicanthus pumilio* and

Myosorex tenuis (Miss F. Ross); Bellville, off *Arricanthis* and *Tatera lobengulæ* (T. Muller).

In the Bellville specimens the end-segment of the proboscis is twice as long as the penultimate one, whereas in the type-specimen from Kingwilliamstown the ratio is 14 : 10.

7. *Listropsylla cerrita* sp. nov. (text-figs. 6♂, 7♀).

♂♀. The largest known species of the genus. Close to *L. chelura*, with which it shares the main distinctions from the other species. It differs from



L. chelura in the ♂-genitalia, particularly in the body of the clasper not being transversely striated, and in the ♀ bearing on the basal portion of VIII. t. from the trachea of the stigma downward (text-fig. 7) from 7 to 10 strong bristles instead of 4 to 6. Dorsal spines of pronotal comb somewhat shorter than in *L. chelura*. End-segment of proboscis from $2\frac{1}{3}$ to 3 times the length of the penultimate segment.

♂. Dorsal apical process of clasper more strongly curved dorsad-frontad (text-fig. 6), the bay between it and the large proximal bristle of clasper therefore more rounded than in *L. chelura*, usually almost semicircular. Exopodite F narrower and somewhat longer than in *L. chelura*; its large ventral bristle also longer. Ventral arm of IX. st. as in *L. chelura* with a pair of postmedian lateral bristles; these bristles a little shorter and thinner than in *L. chelura*; from these bristles to apex sternite IX narrower than in *L. chelura* and also longer, the apex itself less rounded, distinctly narrowing to tip, which is farther distant from subapical ventral spiniform bristles than in *L. chelura*. Sternite VIII with 20 to 34 bristles each side (type 34 on one side, 30 on the other), at least 10 of these bristles large (instead of 6 or 7 as in *L. chelura*).

♀. Bursa copulatrix and spermatheca as in *L. chelura*. Proximally of stylet on lateral sclerite below pygidium from 10 to 14 bristles. Pygidium with 21

to 24 grooves on each side. Apical spines on abdominal tergites II and III slightly more numerous than in ♀ of *L. chelura*: II 22 to 26, III 18 to 21, the numbers in *L. chelura* being II 16 to 21, III 12 to 16.

Length of hindfemur: ♂ 0.73 to 0.81 mm.; ♀ 0.83 to 0.94 mm.

Hab. Cape Province: Klaver, Doorn R., from nests of Karroo rats on side of mountain (*Mystomys broomi* and *Parotomys luteolus*), 16.viii.1929 (C. V. Muller), 4 ♂♂, 5 ♀♀.

This is possibly a western subspecies of *L. chelura* a question, which can only be answered satisfactorily when sufficient material from other districts of the Cape Province is available for comparison.

Key to the species of *Listropsylla*.

A. Segment II of antenna apically rounded-enlarged, some of its bristles reaching to apex of club or even beyond. Pygidium with 30 or more grooves on each side. ♂: body of clasper much shorter than long, its dorsal bay small, about as large as dorsal apical process; exopodite broad, of nearly even width, its long ventral bristle slender, subventral. ♀: tail of spermatheca longer than head.

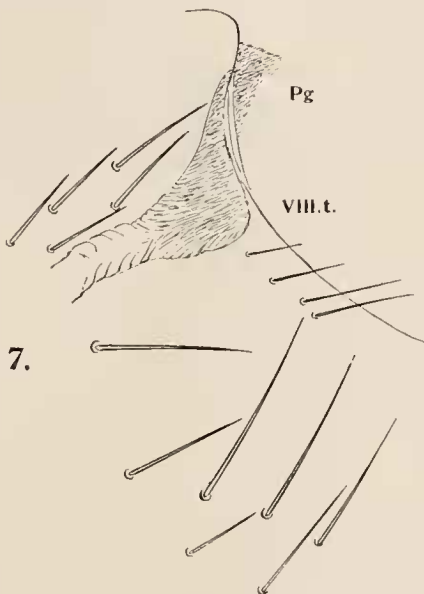
1. Abdominal tergites II to VII with at least one, usually two, bristles more ventral than stigma. ♂: lower apical angle of clasper produced. ♀: nearly always with 4 antepygidial bristles. *L. agrippinae* Roths. 1904.
2. Abdominal tergites V and VI at most with one, VII with no bristle more ventral than stigma. ♂: lower apical angle of clasper not produced distad. ♀: 3 antepygidial bristles.

L. vicinus Roths. 1905.

B. Segment II of antenna not enlarged, its bristles reaching at most to middle of club. Pygidium with 25 or fewer grooves each side. Abdominal tergite I with fewer than 30 apical spines. ♂: body of clasper longer than broad, the dorsal bay wide; exopodite strongly narrowing towards apex and towards base, its long ventral bristle at two-thirds (approximately). ♀: tail of spermatheca shorter than head.

3. Midtarsal segment I twice as long as V. Pygidium with 18 to 25 grooves each side. ♂: ventral apical process of clasper at most thrice as long as broad. ♀: head of spermatheca irregularly elliptical. *L. dorippae* Roths. 1904.
4. Midtarsal segment I less than twice as long as V. Pygidium with 16 or 17 grooves each side. ♂: ventral apical process of clasper at least four times as long as broad. ♀: head of spermatheca subglobular.

L. prominens sp. nov.



5. Midtarsal segment I at least twice as long as V. Pygidium with 16 grooves on each side (rarely 14). ♂: ventral apical angle of clasper not, or very little, farther produced distad than upper angle. ♀: double sclerite behind ring of bursa copulatrix about equal in length to diameter of ring *L. dolosus* Roths. 1907.

C. Segment II of antenna not enlarged, its bristles reaching at most to middle of club. Pygidium with 19 to 24 more grooves on each side. Abdominal tergite I with 40 or more apical spines. ♂: dorsal apical process of clasper triangular, large, very much larger than ventral apical projection, a row of bristles along apical margin of clasper. ♀: head of spermatheca longer than tail, globular; no double sclerite behind ring of bursa copulatrix; stylet as long as hindtarsal segment III.

6. ♂: body of clasper below densely striated transversely. ♀: on basal area of VIII. t. below stigma 4 to 6 bristles *L. chelura* Roths. 1913.
7. ♂: body of clasper not striated. ♀: on basal area of VIII. t. below stigma 7 to 10 bristles (text-fig 7) *L. cerrita* sp. nov.
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